

point I do not wish at present to express a definite opinion), the probability is that it was at least an extinct species, if not a genus.

Could the existence of a St. Helena Sirenian be definitely determined, it would be of much interest in regard to the history and distribution of the group. Mr. Sterndale, who is convinced that the creature was a "Manati," has promised to make a thorough search in the island for any remains that may have escaped destruction; but I fear that any successful results are in the highest degree improbable. The best chance would be to thoroughly examine the shore at Manati Bay, especially if there are any raised beaches.

8. On the Brain of *Hydrochærus*. By FRANK E. BEDDARD, M.A., F.R.S., Prosector and Vice-Secretary of the Society.

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In a communication made to this Society some years since<sup>1</sup> I dealt with the cerebral convolutions of a considerable number of genera of Rodents. Among the more important types which I was unable to study on that occasion was the genus *Hydrochærus*. I was able, however, to refer to a published description of this genus accompanied by illustrations by M. Camille Dareste. Inasmuch as *Hydrochærus* has the largest and best convoluted brain of any Rodent<sup>2</sup>, and as I have been able to study three excellently preserved brains extracted from specimens which have died in the Gardens, I think it worth while to add what I find myself in a position to do to Dareste's relation and interpretation of fact.

That author had two brains at his disposal, but has only figured the dorsal aspect of one. His paper also contains figures of a lateral and a ventral view.

*General External Features of the Brain of Hydrochærus.*

M. Dareste has represented fairly accurately the external features of the brain, save for one particular: I find that in my well preserved brains there is no such hiatus as he figures between the cerebral hemispheres and the cerebellum. The somewhat pointed anterior end of the cerebellum fits in fairly closely between the divergent extremities of the cerebral hemispheres. Moreover the general outline of the hemispheres is by no means so triangular as he has represented it to be. It is indeed almost a hexagon, of a much more graceful figure.

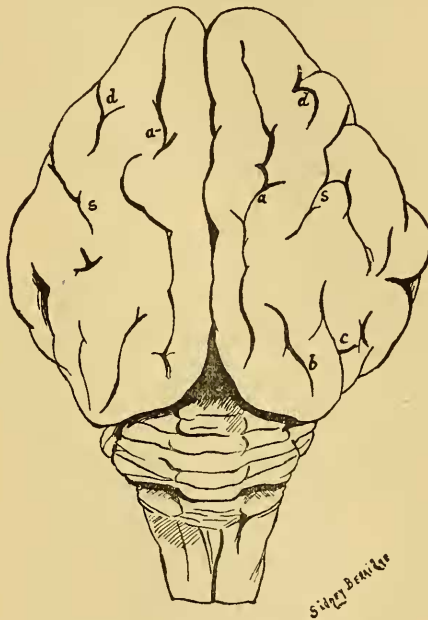
As to the under surface: one of my specimens, which was in an exceptionally perfect state of preservation, enables me to add to Dareste's description and, I believe, improve upon his figure.

<sup>1</sup> "On the Convolutions of the Cerebral Hemispheres in certain Rodents," P. Z. S. 1892, p. 596.

<sup>2</sup> "Note sur le Cerveau des Rongeurs, &c.," Ann. Sci. Nat. (4) iii, p. 355.

The rhinal fissure separating the hemispheres from the underlying pallium is very strongly marked. It does not quite reach the anterior end of the brain, so that here the pallium seems to bend down and become perfectly continuous with the underlying lobe.

Fig. 1.

Brain of *Hydrochærus*, dorsal view. Nat. size.

*a*, internal longitudinal fissure; *b*, middle ditto; *c*, external ditto; *d*, crucial fissure (?); *s*, Sylvian fissure.

Dareste draws attention to two structures on the ventral side of the hippocampal lobe which are thus described:—"En dedans de cette circonvolution est un sillon qui délimite le petit appareil des corps striés et des couches optiques qui est ici très développé." I find these structures to be shown with great clearness in the brain now before me (fig. 2, *a*). They are, however, rather longer in form than they are figured by the authority from whom I have just quoted. Nor have they, as erroneously represented in the figure of Dareste, anything whatever to do with the origin of the optic nerves. The latter can be plainly seen to dip down over the outer side of the crura cerebri. On the other hand, one of the principal roots of the olfactory nerve does arise from this delimited area of brain-tissue, a fact which is not figured or referred to by Dareste. This point should be perfectly clear from the drawing exhibited (fig. 2).

Behind the optic chiasma is a large somewhat heart-shaped elevation (*c, d*). It is divided anteriorly by a median furrow which is well-marked and deep; behind it shows indications of division into two. This elevation appears to me to be the tuber cinereum and the corpora albicantia partly fused, but whose independence is still to be recognized on a careful examination.

Fig. 2.

Brain of *Hydrochaerus*, ventral view. Nat. size.

*s*, pallium; *b*, olfactory nerve; *a*, origin of same; *c*, tuber cinereum;  
*d*, corpora albicantia; *p*, pituitary body.

Other features to be noted on the ventral surface of the brain will be seen by an inspection of the accompanying drawing.

#### *Fissures of the Hemispheres.*

I shall take as an assumed normal the best preserved of my three brains, indicating the divergences in arrangement which the others show.

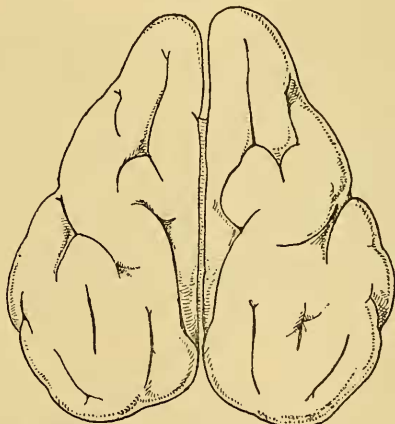
The most salient fissure is that lettered *a* (fig. 1). It runs almost from end to end of the brain; at about the middle of its course it is bulged out on either side, and on the left side it is just interrupted by a bridging convolution, and is thus divided into two

parts, an anterior shorter, and a posterior longer region. It is the fissure lettered *a* of my former paper—the most prevailing fissure of the Rodent brain.

In a second brain (fig. 2, p. 800) the fissure in question is also broken on the left side by a bridging convolution, in this case on the right side also, as is the case with the brain figured by Dareste. It will be noticed that this furrow posteriorly approaches the median furrow of the brain, that dividing the hemispheres, and is very nearly lost to sight over its edge.

In the third brain (fig. 3) the furrow *a* is again broken on the left side, but complete upon the right. Furthermore the furrow (fig. 3) completely disappears from view posteriorly, and this region of the gyrus, which is bounded externally by the furrow in question, is very distinctly depressed below the general surface of the brain.

Fig. 3.



Cerebral hemispheres of *Hydrochærus*, dorsal view. Nat. size.

The conditions that have just been described seem to give a clue to the nature of this sulcus and gyrus. The lobus hippocampi narrowing as it passes backward turns up the back of the brain and becomes continuous with this gyrus, which I therefore consider to be the hippocampal gyrus appearing upon the dorsal surface of the brain. In this feature the brain of the *Capybara* resembles that of certain Carnivora<sup>1</sup> and of certain Ungulata<sup>2</sup>.

The fissure which I letter *b* is, as in other Rodents, short; it is, however, quite deep and well-marked. It runs obliquely inwards in all three brains.

<sup>1</sup> *Helictis* (Garrod, P. Z. S. 1879, p. 307); *Gulo* (Beddard, P. Z. S. 1895, p. 143), &c. &c.

<sup>2</sup> *Moschus* (Flower, P. Z. S. 1875, p. 174); *Dicotyles* (Turner, Journ. Anat. 1891, p. 134), &c. &c.

The third fissure *c*, which runs parallel or approximately so to the last, is also a perfectly constant fissure in the Capybara's brain.

The temporal lobe has further other slight fissures which are so irregular that I think it hardly worth the trouble of describing them.

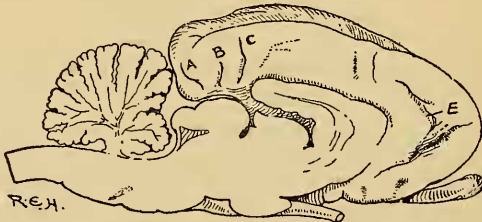
Fig. 4.

Brain of *Hydrochærus*, inner view of hemispheres.

Now we come to the fissure *d* of my former paper on the Rodent's brain. In one of the three brains at my disposal it passes outward and forward from the fissure *a* on both sides, or rather from the margin of the knee-shaped bridging convolution, already referred to. If this region of the brain be compared with my figure of that of *Gulo*, a striking likeness will be apparent, suggesting that the fissure *d* is the crucial sulcus of the Carnivora. In the two other brains the fissure was not so clearly marked.

*Sylvian fissure*.—Dareste has remarked that this fissure appears to be absent in the Capybara. It is certainly not at all plain in any of the three brains which I have examined myself. But nevertheless I do not think that it can be said to be totally un-

Fig. 5.

Brain of *Hydrochærus*, inner view. Nat. size.

A, calcarine (?) fissure; B, C, parieto-occipital; E, callosa-marginal.

represented. On viewing all these brains from the dorsal aspect, a prominent and obliquely (or, in one case, transversely) running fissure is to be seen which separates off the wider posterior region of the hemispheres from the anterior narrower portion (fig. 1, *s*). It coincides, in fact, in position and direction with what seems to be undoubtedly the Sylvian fissure in *Lagostomus* (P. Z. S. 1892, p. 599,

fig. 2, A & B), but it does not reach the margin of the pallium. It is, however, always very near to reaching this margin; and on one side of one brain it appeared actually to do so through becoming confluent with another fissure of short length.

On the mesial surface of the brain a single fissure (fig. 5, E) is very plain anteriorly, which curves round the anterior end of the corpus callosum. This is the limbic fissure of Broca, splenial of other authors, and, I presume, calloso-marginal of still others. A very interesting little fissure was observable in the best preserved of the two brains which I bisected longitudinally. This is shown in fig. 5. At the end of the hemisphere is a short vertical fissure (A, B, C) and a shorter one still behind this, and a more faintly marked one in front. It is of course an obvious suggestion that they are the parieto-occipital and calcarine respectively.

9: Notes upon two Earthworms, *Perichæta biserialis* and *Trichochæta hesperidum*. By FRANK E. BEDDARD, M.A., F.R.S., and SOPHIE M. FEDARB.

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The first of these species (*Perichæta biserialis*) was originally instituted more than twenty years ago by M. Perrier<sup>1</sup>, whose description, however, was only in the nature of a "preliminary communication." The two matters to which he referred, viz. the disposition of the genital papillæ and the enlarged setæ on either side of the ventral median line, were sufficient at that time to fully differentiate the species.

Subsequently one of us received and described<sup>2</sup> some specimens of an earthworm belonging to this same genus also from the Philippine Islands; they were referred to the same species, though the entire absence of spermathecæ was noted. Upon this latter point Perrier made no observations. It was therefore concluded that it would be better to regard the worms described as being of a different species. In the 'Monograph of the Oligochæta' therefore they were described under the name of *Perichæta acystis*. Since then Michaelsen<sup>3</sup> has re-described *Perichæta biserialis* very fully, and more recently still Dr. Horst<sup>4</sup>.

Dr. Horst, whose observations were published after ours were made, examined eight mature worms from Paramaribo in Dutch Surinam: "of these two have four pairs of copulatory papillæ on

<sup>1</sup> "Sur les Vers de terre des Philippines et de la Cochinchine," Comptes Rendus, 1875, p. 1043.

<sup>2</sup> F. E. Beddard, "Observations upon an American Species of *Perichæta*, &c.," P. Z. S. 1890, p. 63.

<sup>3</sup> "Die Terricolen des madagassischen Inselgebiets," Abh. Senck. nat. Ges. xxxi. (1897) p. 226.

<sup>4</sup> "On the Variability of Characters in *Perichætidae*," Notes Leyd. Mus. xx. p. 201.